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REMARKS

OBJECTION TO THE SPECIFICATION

In section 1 of the Office Action, the Examiner stated that "applicant's parameters 't' and 'k' are described as inevitably being equal to each other (at least according to the equation for the first polynomial in paragraph 0016, where 't' is replaced by 'k'), and are only used after a multiplication by two which factor also lacks any described relation to any code generator polynomial design objective." Applicant disagrees with this statement because the specification of the Application, for example, states the following:

"In one embodiment, t=24 or 2t=48. At step 208, the encoder/decoder subsystem generates p(x) as a polynomial of degree 2k, in which its roots are consecutive powers of the same primitive element. In one embodiment, k=2 or 2k=4."

As recited in the above passage, t and k are variables that may not be equal to each other. For example, as stated in the above excerpt from the specification of the present Application, t=24 and k=2.

Furthermore, the Examiner states that "applicant's generator polynomial selection process appears to be an artificial and arbitrary breaking up of the conventional process of selecting 2t consecutive roots into a two-part process of selecting two consecutive sets of t consecutive roots, described in a manner to superficially suggest that it is something else by the use of needlessly - multiple and needlessly-multiplied non -standard variable terms." Applicant disagrees with the Examiner since the present Application does not disclose "selecting two consecutive sets of t consecutive roots". Nor does the Application disclose any "artificial and arbitrary breaking up

of the [sic] conventional process of selecting 2t consecutive roots". Furthermore, Applicant fails to see how adherence to a "conventional process" provides a "new and useful process, machine, manufacture, or composition of matter, or any new useful improvement thereof", as may be referenced in 35 USC § 101. Applicant's use of 2 polynomials is not arbitrary and relates to a novel "three stage decoding process" as disclosed on page 18 of the present Application. This three stage decoding process is illustrated in Figures 3A and 3B of the present Application. As stated in the text of page 18 of the Application, "In one embodiment, the decoding algorithm utilizes a 3 stage decoding process in which 1) a first error correction is performed at the first processing stage using f(x), 2) an error detection check is performed at the second processing stage using p(x), and 3) a second error correction is performed at the third processing stage using g(x)". As disclosed in the present Application, f(x) and p(x) may be implemented such that the first error correction corrects up to a maximum of t errors where t corresponds to one-half the degree of f(x). The second error correction may be implemented, if the error detection check determines that errors still remain after performing the first error correction, such that the second error correction corrects up to t+k errors where k corresponds to one-half the degree of p(x). As disclosed in the present Application, the polynomials f(x) and p(x) may be pre-computed and implemented at the time of manufacture. As a consequence, Applicant respectfully requests that the Examiner withdraw his objection to the specification.

CLAIMS 1-2, 4-10

The Examiner has rejected Claims 1-2 and 4-10 under 35 U.S.C. 102(b) as being anticipated by Fredrickson et al. (US 5,778,009), hereinafter "Fredrickson." The Examiner has rejected Claims 1, 2, 4, 5, 7 and 9 under 35 U.S.C. 102(b) as being anticipated by Lee et al. (US 5,872,799),

hereinafter "Lee." The Examiner has rejected Claims 1, 2 and 4 under 35 U.S.C. 102(b) as being anticipated by Zook (US 5,465,260), hereinafter "Zook." Applicant respectfully submits that Claim 1 is allowable over the references cited by the Examiner. The first clause of Claim 1 recites generating a first polynomial whose roots comprise one or more powers of a primitive element of a Galois field, wherein the first polynomial is capable of being used to perform a first error correction of an encoded codeword. The second clause of Claim 1 recites generating a second polynomial whose roots comprise one or more powers of a primitive element of said Galois field, wherein the second polynomial is capable of being used to perform an error detection check in said encoded codeword. The third clause of Claim 1 recites generating a product of said first polynomial and said second polynomial, wherein the product is used to generate the encoded codeword. None of the cited references (i.e., Fredrickson, Lee, or Zook) teach, disclose, or suggest what is recited in any of the three clauses of independent Claim 1. As a consequence, Applicant respectfully submits that independent Claim 1 is in condition for allowance. Since Claims 2-10 depend on an allowable Claim 1, dependent Claims 2-10 are allowable as well. Further, Claim 10 has been amended to correct a typographical error.

Claims 26-31

The Examiner has rejected Claims 26-30 under 35 U.S.C. 102(b) as being anticipated by Massoudi et al. (US 6,363,511), hereinafter "Massoudi." The Examiner alleges that Massoudi teaches what is recited in Claims 26-30. Independent Claim 26 recites a system to effectively correct and detect errors in a media of a storage device, wherein the system comprises an encoder for generating an encoded codeword that is written onto said media of said storage device, and a decoder for decoding said encoded codeword that is read from said media of said

storage device using at least two processing stages of error correction, wherein a first of said two processing stages is used to correct up to a first number of errors in said encoded codeword and a second of said two processing stages is used to correct up to a sum of said first number plus a second number of errors in said encoded codeword, said first number corresponding to one-half the degree of a first polynomial, said second number corresponding to one-half the degree of a second polynomial. The Examiner states that "Massoudi discloses a decoder (Fig. 4B) for Reed-Solomon product-code codewords, including two stages of correction (410, 414)." Applicant references the following passage obtained from Massoudi at col. 6, lines 48-52 regarding element 410: "The on-the-fly row correction circuitry 410 receives a data stream of ECC block data in rows and detects and corrects row errors on the fly up to a number of errors, which is programmable by a user." Furthermore, Applicant references the following passage from Massoudi at col. 6, lines 63-66 regarding element 414: "The column and EDC syndrome generator circuitry 412 computes syndromes for all columns and also determines all the syndromes for EDC of each of the sectors in an ECC block." Applicant respectfully submits that nowhere is there any teaching or disclosure of "a decoder for decoding said encoded codeword that is read from said media of said storage device using at least two processing stages of error correction, wherein a first of said two processing stages is used to correct up to a first number of errors in said encoded codeword and a second of said two processing stages is used to correct up to a sum of said first number plus a second number of errors in said encoded codeword, said first number corresponding to one-half the degree of a first polynomial, said second number corresponding to one-half the degree of a second polynomial", as recited in the second clause of independent Claim 26. As a consequence, Applicant respectfully submits that Claim 26 is allowable and requests that the Examiner withdraw his rejection. Applicants respectfully submit

that Claims 27 and 30 are in condition for allowance since they depend on an allowable Claim 26.

Claims 28-29 have been cancelled. New Claim 31 has been added to the Listing of the Claims. Applicants respectfully submit that the elements and/or features of dependent Claim 31 are not taught or disclosed by any of the Examiner's cited references. Furthermore, since Claim 31 depends on an allowable Claim 26, Claim 31 should be allowed.

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In Response to Office Action Mailed: July 18, 2006
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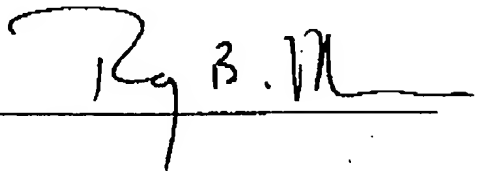
CONCLUSION

Based on at least the foregoing, the Applicant believes that Claims 1-27 and 30-31 are in condition for allowance. A Notice of Allowance is courteously solicited. Should anything remain in order to place the present application in condition for allowance, or should the Examiner disagree or have any question regarding this submission, the Examiner is kindly invited to contact the undersigned at (312) 775-8246.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

Dated: October 17, 2006

Respectfully submitted,



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